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On a Collection of Plants made in Georgia in the Summer of 1900

BY ROLAND M. HARPER

(WITH PLATE 29)

Having made plans to spend the past summer in studying the flora of Georgia, I left New York on the 14th of June, 1900, and arriving in Georgia the next day. While passing through North Carolina on the morning of the 15th, I noted an extension of range of an introduced plant, which might be mentioned here. At Aberdeen, Moore county, I found *Acanthospermum australe* (L.) Kuntze growing beside the track. This station is considerably farther north than the one mentioned in a previous paper,* and is probably the northernmost yet reported. In the same county, among other things of interest, I saw *Sarracenia flava* L. for the first time. It was quite abundant in moist pine-barrens from Lemon Springs to Aberdeen, a distance of about 22 miles.

My first stop in Georgia was at Athens, where I had collected many interesting plants in previous years. Here I spent about three weeks, collecting plants numbered 1 to 161, all in Clarke county. During June my operations were considerably interfered with by unusually frequent rains, and on this account I did not have a chance to visit some of my favorite localities in adjacent counties.

On July 8th I went to Atlanta, where I was joined by Mr. Percy Wilson, of the New York Botanical Garden, who accompanied me during the next four weeks.

During a week spent in Atlanta we made trips to several points of botanical interest in the vicinity. On the afternoon of the 9th we collected along the bank of the Chattahoochee River in Cobb county, and on 10th we spent the day at Stone Mountain, in DeKalb county, which has been made famous by the researches of Porter, Ravenel, Canby, Gray, Small and several other botanists. Fig. 1 is a view of the mountain from the northeast, about a mile distant, showing the precipitous north side.

* Bull. Torr. Club, 27: 341. 1900.



1. STONE MOUNTAIN FROM THE NORTHEAST



2. PINE BARREN NEAR LESLIE, GEORGIA



3. TYPE LOCALITY OF *DICERANDRA ODORATISSIMA*

On the 12th we went to Kennesaw Mountain, in Cobb county, 20 miles northwest of Atlanta, whose summit is the highest point in Georgia south of the 34th parallel (1809 feet). This mountain is well known historically, having been the scene of an important battle on June 27, 1864, but has apparently never been mentioned in botanical literature. Kennesaw is mostly covered with woods, and its flora seems to be richer in species than that of Stone Mountain, which is mostly bare rock. Many species are common to the two mountains, but those on Kennesaw are in general plants of less restricted range.

On the afternoon of the 14th Mr. Wilson made a short trip to De Kalb county, while I went to the northern part of Clayton county, about 10 miles southwest of Atlanta, where I discovered new stations for two or three rare species. While in the vicinity of Atlanta Mr. Wilson collected plants numbered 1 to 61, and I increased my numbers to 241.

We left Atlanta on the morning of July 17th, and went *via* the Southern Railway to Dalton, the county seat of Whitfield county, about 100 miles to the northward. Up to this time we had been collecting in the Archaean or granite region, but on the way to Dalton we passed into the newer terrane of the Palaeozoic.

Between Atlanta and Dalton I made notes on several interesting plants seen from the train, the most important of them being *Pinus palustris*, which has long been known to reach its inland limit in this region, though I know of no botanist who had visited this portion of its range before; and I selected the longer route to Dalton because I knew it would give us an opportunity to observe this species. It was first seen by us in the western part of Paulding county, in the Archaean region, at an altitude of about 1100 feet, and for the next 15 miles along the railroad, in Polk and Floyd counties, some specimens of this pine were nearly always in sight. In Polk county we crossed the boundary of the Palaeozoic region and began to descend rapidly, and in Floyd county, where we left *Pinus palustris* behind, our altitude was only about 600 feet.

We made Dalton our headquarters during a few weeks' exploration of Whitfield and Walker counties, which lie along the northern boundary of the state, adjacent to Tennessee, and are

both wholly in the Palaeozoic region. The principal points of interest visited during the remainder of July were the Chattoogata Mountains, a few miles west of Dalton, and Gordon Springs, in the extreme western part of Whitfield county, at the base of Taylor's Ridge. At this delightful rural retreat we spent three days, from the 25th to the 28th, crossing the ridge into Walker county, two or three times. The summits of these higher ridges in Whitfield county, are composed of sandstone rocks, of the Red Mountain (or Rockwood) formation, which represents the upper portion of the Silurian in Georgia. The lower ridges are mostly of the Knox Dolomite and Chickamauga formations (Lower Silurian).

During these trips in the latter part of July I collected my numbers 242-324, and Mr. Wilson his numbers 62-160.

Having decided to explore the still higher mountains of the Lookout plateau to the west of us, we set out on July 31 and walked across Chattoogata, Taylor's, and several smaller ridges, to Lafayette, the county seat of Walker county, about 25 miles west of Dalton. With Lafayette as a base, on the first three days of August we made trips to different portions of Pigeon Mountain, a few miles to the westward, and also collected several plants in the immediate vicinity of Lafayette, which is in a valley of Oostanaula (or Connasauga) shale, a part of the Cambrian formation.

Pigeon Mountain is a spur of Lookout Mountain, and, like Lookout, is a synclinal plateau, capped by coal measures (Carboniferous). The rock of the coal measures here is a sandstone, scarcely distinguishable from the Red Mountain sandstone. Below the coal measures the Mountain (or Bangor) Limestone is exposed over a large area on the lower slopes of the mountain. This is a compact bluish limestone, and many interesting plants are found on it. Below the carboniferous rocks is a stratum of Devonian rocks about 25 feet thick, known as the Chattanooga Black Shale. This outcrops all along the base of the mountain, but is rarely visible, on account of the ease with which it disintegrates where exposed.

The highest point of Pigeon Mountain is 2329 feet above sea level, and about 1400 feet above the adjacent valleys. On the first of August we ascended to this high point, and made the acquaintance of some of the rare plants of this mountain region.

On the following morning we collected in and near Lafayette, and in the afternoon went to the railroad tunnel at the north end of Pigeon Mountain and found a number of interesting plants on the Chattanooga Black Shale and Mountain Limestone in that vicinity.

On the morning of the third we visited Bluebird Gap, on the mountain, about midway between the points visited on the two preceding days. The same afternoon we returned to Dalton by rail, by way of Chattanooga, Tenn.

We would gladly have remained longer in this interesting region, but as we could not bring our driers over the mountains with us, our stay was limited. During our Lafayette trip Mr. Wilson collected numbers 161-210, and I numbers 324-365.

On August 5 Mr. Wilson left me, to return to New York, while I remained in Dalton ten days longer, collecting plants numbered 366 to 401 in the vicinity.

From Dalton I journeyed about 250 miles southward, and the afternoon of the 16th found me at Leslie, a small town of about 200 inhabitants, in the pine barrens of Sumter county, where I spent five weeks at the home of the mayor, an old friend of mine. From Leslie I made three trips to Americus, 12 miles northwest, on August 20, 27-29, and September 15, and two to the Flint River, 9 miles east, on September 3 and 10. The rest of the time I collected within two or three miles of Leslie. Fig. 2 is a typical scene in the pine barrens near Leslie, in which I did most of my collecting in that region.

The geological formations in Sumter county are Lower and Middle Eocene (Tertiary), with several subdivisions, overlaid by two recent formations, the Lafayette and the Columbia. The Lafayette (named for its type-locality, Lafayette county, Mississippi), which is a mixture of sand and clay in varying proportions, averaging many feet in thickness, covers nearly the whole county. In the vicinity of the Flint River this has been removed by erosion and replaced by the Columbia (named for the District of Columbia), a newer and much thinner deposit of almost pure sand. In the southeastern part of the county the Columbia formation extends back from the river about three miles, and seems to overlap the Lafayette slightly, as I have been led to infer from the character

of the existing vegetation there. The very important relations between these two superficial formations and the present flora seem to have been almost entirely overlooked by botanists. The Lafayette is briefly mentioned by Dr. Mohr in his "Timber Pines of the Southern States," and by Dr. Gattinger in his "Tennessee Flora" (in the latter under its former name of Orange Sand), but I find no mention of the Columbia in any botanical work published previous to my trip.

While in Sumter county (together with a trip to Dooly county on September 3, when I crossed the Flint River), I collected plants numbered 402 to 657.

A friend in Douglas, the county seat of Coffee county, having invited me to spend a few days with him, I now availed myself of an opportunity to visit a part of the State botanically and geologically unexplored, and on September 19th left Leslie and started for Douglas, by way of Cordele, Tifton and Waycross.

Between Cordele and Tifton a change in the topography and flora of the country I was passing through became apparent. I passed from a comparatively level region, with the water mostly in ponds and swamps occupying shallow basin-like depressions, to a slightly rolling region, with valleys occupied by sluggish streams. Here I saw *Sarracenia flava* in Georgia for the first time, and in considerable abundance. *Pinus heterophylla* began to appear, replacing *P. palustris*, and *Taxodium distichum imbricarium* became common in all the little valleys, instead of only occupying isolated depressions, as in Sumter county. I also saw many plants new to me, which the rapid motion of the train would not permit me to identify.

This change in the topography and flora is probably caused by a double change in the geological formations. Between Cordele and Tifton the Middle Eocene strata are replaced by Upper Eocene, and somewhere near the same place the overlying Lafayette becomes in turn overlaid by the Columbia. The Lafayette is covered in this way throughout most of southeast Georgia. The underlying formations no doubt influence the topography, and thereby indirectly the flora, while the superficial formations have a direct influence on the character of the flora.

At Tifton, which is in the northwestern corner of Berrien county

I had to wait from 3:30 to 5:15 p. m. for another train, and during the short time at my disposal I went out into the pine-barrens to examine the flora, which I found quite different from any to which I had been accustomed. Here I collected twelve species, numbered 658 to 669, two of which are described below as new.

It became dark soon after I left Tifton, so that I did not have much further opportunity to observe the flora that day. I noticed however that *Serenoa serrulata* began to appear a few miles east of Tifton, and the pines seemed to be all *P. heterophylla*. I am not sure that I saw *P. palustris* any more during the remainder of my trip.

In Waycross the next morning I took a short walk into the outskirts of the city before boarding the train for Douglas, and found myself in an almost perfectly level region, in which the underlying formation is probably Miocene. What I saw of the flora there did not differ much from that at Tifton, the superficial formations being no doubt the same. I collected only one species in Waycross, no. 670.

From Waycross to Douglas, a distance of 42 miles, the country is very sparsely settled, and the pine forests are almost unbroken. To my surprise I noticed that nearly every tree bears the marks of the turpentine industry, but otherwise the country is practically in a state of nature. For a distance of 35 miles out from Waycross the topography continues level, and then changes rather abruptly to a rolling country similar to that around Tifton.

This part of Georgia is a most excellent region for studying the distribution of plants, for the destructive influences of civilization have scarcely begun to make themselves felt here, and most of the species are fairly common throughout their respective areas, so that their ranges can be determined with some degree of accuracy. In the case of the more conspicuous plants one can observe many of them to good advantage while traveling by rail, as I found from experience.

Coffee county seems never to have been visited by a botanist before, and I made some interesting discoveries during my short stay there. The topography and flora around Douglas are so similar to those in the vicinity of Tifton that the geological formations are probably very nearly the same, namely, Upper Eo-

cene, overlaid by Lafayette and Columbia. My numbers 671-724 were collected in Coffee county, between September 21 and 26.

On the morning of the 28th I went from Douglas to Savannah. The afternoon of the same day I made a trip to Thunderbolt, a few miles south of Savannah, and collected nos. 725-731 in the salt marshes there; and on the 29th I spent most of the day on Tybee Island, in the same county (Chatham), at the mouth of the Savannah River. This is the easternmost point of Georgia.

Although Tybee is a famous summer resort, and the only island on the Georgia coast reached by railroad, it seems to have been almost entirely overlooked by botanists. The flora of Tybee is such as might be expected anywhere along the Georgia or Carolina coast, and although most of the plants I collected there were new to me, few are of especial interest. The surface of the whole island is covered with the sands of the Columbia formation, and the most conspicuous geological feature is the line of sand dunes along the shore, the largest ones being about twenty feet in height. On these I did most of my collecting, and also photographed a number of characteristic plants which I did not collect, such as *Sabal Palmetto*, *Uniola paniculata*, *Yucca gloriosa*, etc. One Tybee Island I collected plants numbered 732 to 754, and this ended my collecting for the summer.

During 106 days spent in Georgia I collected plants in twelve counties, and made notes on the flora of fifteen others which I passed through. Besides my regular collection of spermatophytes and pteridophytes I collected a few sets of bryophytes and thallophytes, amounting to 86 numbers, which were numbered separately from the rest. I crossed every geological formation recognized in the state (about twenty-five in number), though I did not collect plants on all of them. The observations I made on the relations between geological formations and existing flora promise to yield some interesting results when properly correlated.

The figures on Plate 29 are from photographs made with a hand camera of 4-inch focus, and are reproduced nearly natural size.

It would be impracticable to give here a complete enumeration of the plants collected by Mr. Wilson and myself in Georgia last summer, but in the following notes I will mention some of the new

or noteworthy ones. For the sake of brevity I omit the bibliographical citations of most of the species. Descriptions of those whose places of publication are not cited may be found in Chapman's Flora, third edition, or in Britton and Brown's Illustrated Flora.

ASPLENIUM ANGUSTIFOLIUM Mx.

Collected by Mr. Wilson on moist shaded cliffs of Chattanooga Black Shale near the north end of Pigeon Mountain, at an altitude of 1000 ft., August 3 (no. 210). We did not find this fern on any other formation. This station is near its southern limit.

ASPLENIUM BRADLEYI D. C. Eaton

Collected by Mr. Wilson near the summit of Stone Mountain, at 1650 ft. altitude, July 10 (no. 17), and by myself on sandstone cliffs on the east slope of Rocky Face Mountain (a part of the Chattoogata range), in Whitfield county, at 1400 ft., July 21 (no. 279).

CAMPTOSORUS RHIZOPHYLLUS (L.) Link

On August 2 I found this fern for the first time, growing on the upper portions of the Chattanooga Black Shale near Pigeon Mountain Tunnel, at 1000 ft. (no. 358).

EQUISETUM HIEMALE L.

What appears to be this species was collected by Mr. Wilson in wet clay soil just north of Lafayette, Walker county, at an altitude of 925 ft., on August 2 (nos. 192, 195). I find no record of its having been collected in the Southern States east of the Mississippi before.

LYCOPodium PINNATUM (Chapm.) Lloyd & Underw. Bull. Torr. Club, 27: 155. *pl.* 3, 4. 1900

I collected this species in moist pine barrens in Sumter county on September 8 (no. 613), and in a similar locality in Coffee county on the 25 (no. 705). At the former station it was accompanied by *L. alopecuroides*.

SELAGINELLA RUPESTRIS (L.) Spring

Found in abundance on exposed granite rocks on the southwest slope of Kennesaw Mountain, at an altitude of 1220 ft. (no.

215). This is probably the southernmost known station for this species east of the Mississippi, the Florida plants being now referred to another species.

ISOETES ENGELMANNI GEORGIANA Engelm. Trans. St. Louis Acad. Sci. 4: 384. 1882

On July 26th I discovered a second station for this little-known plant, in cool wet woods at the eastern base of Taylor's Ridge, Whitfield county, at 1100 ft. altitude (no. 310). It grew in wet clayey soil, which is probably never inundated, and was accompanied by *Panicum barbulatum*, *Isnardia palustris*, *Lycopus* sp., *Gratiola Virginiana* (no. 311), and a few other plants. Only about 25 specimens were observed, but more could probably have been found by a longer search. This station is about 36 miles north of the original one and 500 ft. higher. I am indebted to Professor Underwood for the determination of this plant.

PINUS PUNGENS Mx. f.

This tree is quite common on the Chattoogata Mountains, Taylor's Ridge, and other outcrops of Red Mountain strata, descending to about 1000 ft. Collected on the Chattoogata Mountains, July 19th (no. 263).

PINUS GLABRA Walt.

I made the acquaintance of this little-known pine on September 3d, while collecting along the Flint River (no. 560). It grows along both banks of the river, in Sumter and Dooly counties, at an altitude of about 200 ft. On the 20th of the same month I saw a few specimens in Coffee county, near Seventeen Mile Creek. It is called "white pine" by some of the natives in that vicinity, who probably consider it identical with *P. Strobus* of the north.

SAGITTARIA MOHRII J. G. Smith; Mohr, Bull. Torr. Club, 24: 19. pl. 290. 1897

Collected in a very wet, slightly sloping bog among the pine barrens of Coffee county, September 25 (no. 718). Previously reported only from the original station, Mobile, Ala., which is 300 miles away.

CHRYSOPOGON SECUNDUS (Ell.) Benth.

Andropogon secundus Ell. Bot. S. C. & Ga. 1: 580. 1818.

Sorghum secundum Chapm. Fl. S. States, 583. 1860.

Collected in dry pine barrens west of Douglas in Coffee county, Sept. 25 (no. 719). Also seen three days later in Appling, Ware, Pierce, Wayne, Liberty and Chatham counties. This species has not been reported from southeast Georgia before.

Dried specimens give little idea of the elegant appearance of this grass. The stems grow several in a tuft, and are not erect as usually described, but ascending, and slightly curved at the summit; and the graceful one-sided panicles are very handsome with their yellow anthers and long purple awns. It is known as "wild oats" by the natives of southeast Georgia. This species is not mentioned by Scribner and Merrill in their recent paper on Elliott's grasses (Circ. U. S. Dept. Agric., Div. Agrost. 29: F. 1901).

I have just found a good colored figure of it, showing the panicle and upper part of the stem, in Georgia Insects* (*pl.* 13), where it is called *Andropogon nutans*. Mr. Abbot's figure, which is over 20 years older than Elliott's description, is probably the only one ever published of this species, and it illustrates very well some of the characters I have just mentioned.

PANICUM PUBIFOLIUM Nash, Bull. Torr. Club, 26: 577. 1899

Collected by myself in dry rocky woods in Athens, June 20 and 25 (nos. 15, 40), and by Mr. Wilson in Cobb county, July 12 (no. 27). My specimens were determined by Mr. Nash. This species seems quite distinct from any other *Panicum* I have seen in middle Georgia.

PANICUM GYMNOCARPON Ell.

Grows in considerable abundance on the muddy banks of Muckalee Creek in Americus, where I collected it on August 28 (no. 522). Although the type-locality of this species is in Georgia,

* The Natural History of the rarer Lepidopterous Insects of Georgia. Including * * * the Plants on which they feed. Collected from the observations of Mr. John Abbot, * * * by James Edward Smith, M.D., F.R.S. London, 1797. Folio. 104 plates.

I have seen no other specimens from the state besides my own, the others all being from farther west. It does not seem to be generally known that the stems of this species are often, if not usually, decumbent at the base and root from the lower nodes.

CENCHRUS MACROCEPHALUS (Doell) Scribn. Bull. U. S. Dept. Agric., Div. Agrost. 17: 110. f. 406. 1899

I found this species very abundant on the summits of the drifting sand dunes of Tybee Island (no. 744).

CENCHRUS INCERTUS M. A. Curtis

Collected in dry sandy soil on the banks of Gum Creek (near the Flint River) in Dooly county, September 3 (no. 570). All the specimens of this species which I have seen seem to be from the Columbia formation.

ARISTIDA SPICIFORMIS Ell.

Collected in flat pine barrens near Douglas in Coffee county, September 22 (no. 686), where it was accompanied by *Polygala nana*, *Kalmia hirsuta* (no. 687), *Azalia cassioides* (no. 688), and *Gratiola hispida* (no. 689). Also seen in Ware county, September 28. In the living state this grass bears a striking resemblance to *Hordeum jubatum*, on account of its long straight crowded awns.

ARISTIDA PALUSTRIS (Chapm.) Vasey, Contr. U. S. Nat. Herb. 3: 45. 1892

Collected in a pine-barren pond in Sumter county, September 12 (no. 644), and in wet pine barrens near Douglas, September 22 (no. 690). Previously known only from Florida and near the Gulf coast.

SPOROBOLUS FLORIDANUS Chapm.

Collected in moist pine barrens, Sumter county, August 31 (no. 547) and September 8 (no. 611). Not definitely known outside of Florida before. The leaves of this species are unusually stiff and strong, being of about the same texture as those of *Sabal glabra* or *Serenoa serrulata*. When putting the plants into press I noticed that the leaves did not break like those of other grasses when doubled, and after my return I made some tests of their strength.

A leaf from the first collection (no. 547), 5.5 mm. wide, not twisted, and perfectly dry, sustained a weight of 27 pounds without breaking.

SPOROBOLUS COMPRESSUS (Torr.) Kunth.

Collected in moist pine barrens, Sumter county, with *S. Floridanus*, August 31 (no. 549). Previously reported only from Long Island and New Jersey, so that my discovery extends the known range of this species southwestward about 700 miles. Identified by Prof. Scribner, of the U. S. Dept. of Agriculture. *Rhexia aristosa*, another New Jersey plant, was found a short distance away a few days earlier (see below).

EUSTACHYS FLORIDANA Chapm.

In dry sand near Gum Creek, Dooly county, September 3 (no. 571), with *Cenchrus incertus* and *Paronychia riparia*. The northernmost station previously reported for this species is Bainbridge, which is about 100 miles farther down the Flint River. Like *Cenchrus incertus*, it seems to be confined to the Columbia formation.

CYPERUS SQUARROSUS L.

Abundant in sandy soil along the streets and railroad in Douglas. Collected September 22 (no. 674). This I believe is the first time it has been reported in this country north of Florida.

CYPERUS REFRACTUS Engelm.

Grows in dry rocky woods in Athens, with *C. retrofractus*, which it much resembles. Collected June 20 (no. 17). Not previously reported from Georgia.

KYLLINGA BREVIFOLIA Rottb.

K. monocephala Torr.

Collected in moist soil on Tybee Island, September 29 (no. 753). I find no record of any station farther north than this.

KYLLINGA ODORATA Vahl

In muddy places in the northern part of Americus, August 27 (no. 503). Altitude about 350 ft. Not previously reported north of Florida.

Fuirena breviseta Coville

F. squarrosa var. *breviseta* Coville, Bull. Torr. Club, **17**: 6. *pl.* 98. *f.* 6. 1890

Collected in moist sandy soil, Leslie, August 17 (no. 403). Mr. Coville, who determined my specimens, now regards this without hesitation as a distinct species, and asks me to so publish it for him. In most of my specimens the upper leaves are deflexed, and this seems to be due to the turgidity of a portion of the base of the blade. This turgid portion is rather conspicuous on account of its whitish color.

SCIRPUS ATROVIRENS Muhl.

Collected in a marshy place south of Kennesaw Mountain in Cobb county, at an altitude of 995 ft., July 12 (no. 207). (Not previously known from middle Georgia.) Also in a wet meadow just west of Taylor's Ridge in Walker county, at 950 ft., July 31 (no. 325). The latter station is on the Chickamauga formation.

SCIRPUS POLYPHYLLUS Vahl

Found with *S. atrovirens* in both the above-mentioned localities (nos. 209, 326), also in wet woods, DeKalb county, at 950 ft. altitude, July 10 (no. 196). The station last mentioned seems to be the southernmost known for this species. It was also observed at two or three points in Whitfield county, mostly on Chickamauga strata.

SCIRPUS GEORGIANUS Harper, Bull. Torr. Club, **27**: 331. *pl.* 22. 1900

On June 18th I revisited the type-locality of this species, in Clarke county, and after some search succeeded in finding a good specimen (no. 6). On July 4th I found it in some abundance about three miles farther down the Middle Oconee River (no. 156), and on the 12th I was agreeably surprised by discovering another station for it, 62 miles west of the original, in Cobb county at 995 ft. altitude (no. 212). The specimens from this locality are in every way similar to those from the type-locality. At the Cobb county station both *S. atrovirens* and *S. polyphyllus* were collected also within a few yards, thus affording an exceptional opportunity for

comparing the three species. With the better material of *S. Georgianus* now at hand I can add somewhat to the original description. The stem is usually a meter tall, and bears as many as eight or ten leaves. The character of the sheaths of the leaves seems to be variable and of little value. Its affinities seem to be rather more with *S. atrovirens* than with *S. polyphyllus*.

SCIRPUS SYLVATICUS L.

A few large specimens of this species were collected in a small brook at the northern base of Stone Mountain, at about 950 ft. altitude, July 10 (no. 205), accompanied by *Polygonum setaceum* Baldw. (no. 206). This is its southern limit, as far as known. The locality is so near the perpendicular face of the mountain that it is probably shaded most of the time, and its temperature must be considerably lower than the average of the surrounding country. (See Fig. 1.)

ELEOCHARIS BALDWINII (Torr.) Chapm.

This rare species was collected in flat pine barrens in Waycross, at an altitude of 140 ft., September 20th (no. 670), and in Douglas, September 22 (no. 685).

STENOPHYLLUS FLORIDANUS Britton ; Nash, Bull. Torr. Club, **22** :
161. 1895

I collected this species in a sandy cornfield in the southeastern part of Sumter county, about two miles from the Flint River, September 10 (no. 622), and in similar situations in Douglas, September 22 (no. 691). It has been known hitherto only from the original station, Eustis, Fla., where Mr. Nash discovered it in 1894. It is a common weed in Douglas, and has long been known to the inhabitants there by the name of "water-grass." On asking the origin of this curious name I was told that it is derived from the fact that the plant is especially abundant after a wet summer.

STENOPHYLLUS CILIATIFOLIUS (Ell.) Mohr, Bull. Torr. Club, **24** :
22. 1897

What is probably this species was collected in dry pine barrens, Dooly county, September 3 (no. 575), and on dry sand

hills near Seventeen Mile Creek in Coffee county, September 24 (no. 696). Both localities are on the Columbia formation, where I have never seen *S. capillaris*. I have been unable to distinguish satisfactorily between *S. ciliatifolius* and *S. coarctatus* (*Scirpus coarctatus* Ell.), but to whichever my plants belong, they are certainly distinct from *S. capillaris*.

RHYNCHOSPORA ALBA MACRA Clarke ; Britton, Trans. N. Y. Acad. Sci. **11** : 88. 1892

Collected in a wet sloping bog in Coffee county, September 25 (no. 716), with *Sagittaria Mohrii*. Not previously known from Georgia.

***Rhynchospora solitaria* sp. nov.**

Probably annual. Stems solitary, 5–6 dm. tall, very slender, flattened : basal leaves few, about half the length of the stem and 3 mm. wide, flat or nearly so, weak ; upper stem-leaves 2 or sometimes 1 : when 2 (as in most of my specimens) the uppermost is short, setaceous, inserted 4–6 cm. below the inflorescence, the other about 20 cm. below the inflorescence, 4–6 cm. long, and as wide as the basal leaves (when only one stem-leaf is present it is intermediate in character and position between the two just described) ; spikelets lanceolate in outline, 1-flowered, 5–6 mm. long, aggregated in a single dense terminal compound capitate corymb 12–15 mm. broad, with filiform bracts slightly exceeding the inflorescence : achene oblong, compressed, faintly pitted, 1.5 mm. long, capped with a triangular tubercle about a third its length : style exceeding the spikelet, 2-cleft less than half its length, its branches recurved : bristles about 6, very fragile, equalling the achene, very minutely hispid upward.

A species apparently without close affinity to any other of which I have any knowledge. Readily distinguished by its solitary slender culms, flat basal leaves, short upper leaves, terminal inflorescence, and narrow spikelets. Resembles most in general appearance *R. pallida* M. A. Curtis, but that is a stouter caespitose plant with the very different achene and bristles.

Collected in moist pine barrens, Tifton, Berrien county, on Sept. 19 (no. 668), altitude about 340 ft. An inconspicuous plant, growing scattered among the grass, with *Burmannia capitata* and *Sarracenia psittacina*.

The specific name used has a double significance, applying to both the solitary culms and the solitary inflorescence.

ARISAEMA QUINATUM (Nutt.) Schott

A. polymorphum (Buckl.) Chapm.

In rich shady woods (Knox Dolomite formation) in Whitfield county, at 750 ft. altitude, July 18 (no. 253).

HETERANTHERA RENIFORMIS R. & P.

Collected in a wet meadow in Lafayette, at 925 ft., August 2 (no. 345), and in a similar locality along Bear Creek, Whitfield county, at 725 ft., August 7 (no. 376), the latter specimens in flower.

JUNCUS SETACEUS Rostk.

Found in June in two or three localities in Clarke county (nos. 2, 28), and on July 21 on dripping sandstone (Red Mountain) cliffs on the east slope of Rocky Face Mountain in Whitfield county at an altitude of 1400 ft. (no. 280). The latter station is rather remarkable, as the usual habitat of this species is said to be near the coast.

JUNCUS GEORGIANUS Coville ; Small, Bull. Torr. Club,

22 : 44. 1895

On July 10 I collected this species near its type locality, at the northwestern base of Stone Mountain, at about 1100 ft. altitude (nos. 170, 171), and four days later I discovered a second station in Clayton county, 21 miles away, where it grows on flat granite rocks with *Diamorpha pusilla* as at the original station, at an altitude of 950 ft.

JUNCUS DIFFUSSISIMUS Buckley

Collected in muddy places along a road in the western part of Whitfield county, at 975 ft. altitude, July 27 (no. 313). This station is within a few rods of the divide between the Tennessee and Alabama Rivers. This is a western species, and has not been previously reported from Georgia. I am indebted to Mr. Coville for determining my specimens, which are a little smaller than the average.

TRILLIUM UNDERWOODII Small, Bull. Torr. Club, 24 : 172. 1897

Collected by Mr. Wilson in rich shady woods, Whitfield county at 750 ft. altitude, July 18 (no. 69).

BURMANNIA BIFLORA L.

In moist pine barrens, Sumter county, with *Lycopodium alopecuroides* and *L. pinnatum*, September 8 (no. 615). Not previously reported so far inland.

BURMANNIA CAPITATA (Walt.) Mart.

Collected in moist pine barrens, Tifton, September 19 (no. 669), and seen in similar situations in Coffee county, September 21st. Tifton is probably considerably higher than any other known station for this species (340 ft.). The only specimens I have seen besides my own are from Florida and southern Mississippi.

PONTHEIVA GLANDULOSA (Sims) R. Br.

A few specimens of this rare orchid, without flowers, were collected in rich damp woods in the southeastern part of Sumter county, August 25th (no. 489). Not previously reported from Georgia.

HEXALECTRIS APHYLLUS (Nutt.) Raf.

Collected by myself on the southwest slope of Kennesaw Mountain, at 1400 ft., July 12 (no. 225), and by Mr. Wilson at the base of Mt. Rachel (Chickamauga formation) in Whitfield county, at 800 ft. altitude, July 23 (no. 109).

BATIS MARITIMA L.

A few specimens observed on the south shore of Tybee Island, September 29. This seems to be the northernmost known station for this species on the Atlantic coast. Dr. Feay reported it* from Ossabaw Island, which is in Bryan county.

ARISTOLOCHIA CONVULVACEA Small, Bull. Torr. Club, **24** : 335.
1897

A single sterile specimen of this species was collected in rich damp woods at the eastern base of Taylor's Ridge in Whitfield county, at 1100 ft. altitude, July 26 (no. 309). This seems to be the first specimen collected since the original ones of Dr. Boykin's.

* Oglethorpe Medical and Surgical Journal (Savannah), 3 : 173. 1860. The title of this journal is incorrectly given as "Atlanta Medical Journal" in Dr. Britton's List of Local Floras, and was so copied by me in Bull. Torr. Club, **27** : 323. 1900.

ARISTOLOCHIA NASHII Kearney, Bull. Torr. Club, **21**: 485. 1894

Collected in rich woods along Chokee Creek, Sumter county, August 25 (no. 499). The range of this little-known species is thus extended northward about 30 miles, Dr. Small having collected it near Albany. This and the last-mentioned species were identified for me by Dr. Small.

ASARUM SHUTTLEWORTHII Britten & Baker, Jour. Bot. **36**: 98.
1898

Collected by Mr. Wilson in rich damp woods, DeKalb county, at 950 ft. altitude, July 10 (no. 22).

HEPATICACUTA (Pursh) Britton

The known range of this species was extended into Georgia by Mr. Wilson, who collected it in a ravine near Gordon Springs, in Whitfield county, at 975 ft. altitude, July 26 (no. 119), and on the eastern slope of Pigeon Mountain, August 1 (no. 166).

DELPHINIUM AJACIS L. Sp. Pl. 531. 1753

This species is quite common as an escape in pastures and along roadsides in Athens, although it has not yet been recognized in any of the floras covering this region.

HYDRANGEA CINEREA Small, Bull. Torr. Club, **25**: 148. 1898

Collected in rich woods on the south side of Bear Creek, Whitfield county, July 18 (no. 243). With the typical form were collected some specimens with leaves glabrous beneath, which are apparently indistinguishable from *H. arborescens*.

PHILADELPHUS HIRSUTUS Nutt.

Collected among sandstone rocks along the summit of the Chattoogata Mountains, at 1350–1450 ft. altitude, July 19 and 21 (nos. 267 and 274). Not previously reported from Georgia.

AMORPHA VIRGATA Small, Bull. Torr. Club, **21**: 17. *pl.* 171. 1894

I collected this species at its type-locality on Stone Mountain, July 10 (no. 179), and in a similar locality on Kennesaw Mountain, at 1450 ft. altitude, two days later (no. 226).

GLOTTIDIUM FLORIDANUM (Willd.) DC.

In a previous paper * I mentioned the remarkable woodiness of the stem of this annual plant. On August 28, while in Americus, I collected some specimens of it (no. 525), including some of the largest stems which I could find. A portion of one of these was recently tested in the engineering laboratories of Columbia University, and found to have a tensile strength of 4,135 pounds per square inch. I afterward determined the specific gravity of the wood, exclusive of pith, to be .358. So this is, perhaps, the strongest and heaviest annual wood known. The specimens I collected were in full bloom, and the wood of older plants would probably be still stronger. A radial section of the stem shows numerous medullary rays, and the microscopic structure of the wood is doubtless interesting. It may be of interest to note that this species was much more abundant in Americus last summer than it was in 1897, and it now forms dense thickets along Muckalee Creek many square rods in extent.

I find that this species was first described, with an excellent colored plate, by N. J. Jacquin, under the name of *Robinia vesicaria* (Ic. Plant. Rar. 1: 15. pl. 148. 1781-6; Collectanea, 1: 105. 1786). The specific name *Floridanum* originated with Willdenow (Sp. Pl. 3: 1252) in 1803. The name of the species should then be **Glottidium vesicarium**. A variety (*atro-rubrum* Nash) has been described,† but to rename it would be beyond the scope of this paper. Several other synonyms for the species may be found in Watson's Bibliographical Index.

DOLICHOLUS SIMPLICIFOLIUS (Walt.) Vail, Bull. Torr. Club, 26: 114. 1899

Specimens of this species were collected in Leslie, September 5 (no. 584). Intermingled with the normal simple-leaved form were many specimens with the upper leaves trifoliate, these being apparently identical with *D. intermedius* (T. & G.) Vail, as described by Miss Vail (*l. c.*, 115). From the manner in which the two forms occur together and vary into each other they can only be regarded as mere forms of the same species. But I

* Bull. Torr. Club, 27: 429. 1900.

† Bull. Torr. Club, 23: 101. 1896.

notice that the original description * of the latter calls for "leaves all trifoliate."

PHASEOLUS SINUATUS Nutt.

Collected in sandy soil near Leslie, August 31 and September 5 (nos. 555 and 592). Not previously reported north of Florida.

XANTHOXYLUM AMERICANUM Mill.

Two or three sterile specimens of this species were collected on the northern slope of Kennesaw Mountain, at 1750 ft. altitude, July 12 (no. 229). It has not to my knowledge been reported from the Southern States before, but I find in the Columbia University Herbarium a specimen similar to mine, collected on Stone Mountain by Dr. Small.

POLYGALA CURTISSII Gray

Collected by myself on a flat granite rock in Athens, June 25 (no. 54), with *Stenophyllus capillaris*, *Talinum teretifolium*, *Arenaria brevifolia*, *Crotonopsis linearis*, *Ilysanthes refracta*, etc., also by Mr. Wilson on Stone Mountain, July 10 (no. 10), in Whitfield county, July 26 (no. 135), and on the summit of Pigeon Mountain, at 2329 ft. altitude, August 1 (no. 177).

It seems therefore that I was mistaken in supposing † that the genus *Polygala* was not represented in middle Georgia; for besides the species just mentioned, I collected *P. verticillata* in DeKalb county (no. 189), and Mr. Wilson *P. polygama* in Cobb county (no. 5).

CROTON MONANTHOGYNUS Michx.

This is a common weed in the Palaeozoic region, but was not observed by us in other parts of the state. I collected it along the road over Bluebird Gap on Pigeon Mountain, at about 1300 ft., August 3 (no. 362), and in the streets of Dalton, August 9 (no. 387).

CROTON ELLIOTII Chapm.

Grows in dry pine barrens and dry sandy soil near Leslie. Collected September 5 (no. 593). This species seems to be quite rare. The only specimen I have seen besides my own (and the

*T. & G. Fl. N. A. 1: 285. 1838.

† Bull. Torr. Club, 27: 330. 1900.

only one cited by Mr. A. M. Ferguson in his recent revision of the genus *) is in the herbarium of Columbia University, and was collected at Quincy, Fla., by Dr. Chapman.

STILLINGIA AQUATICA Chapm.

Having noticed the extreme lightness of the wood of this species, I made a determination of its specific gravity. The specimen experimented with was a part of my no. 460, collected in a pine-barren pond near Leslie, Sumter county, August 23. A stem about 2 cm. in diameter, showing five or six annual rings, was dried with the bark on in an ordinary room for about six months. A piece of it was then shaped into a rectangular prism, placed in a drying oven at a temperature of 90° C. for about four hours, and then carefully weighed and measured. Its specific gravity was found to be .2101. Of all known woods, apparently only that of *Leitneria Floridana*, with a specific gravity of .207 (see Trelease in Rep. Mo. Bot. Gard. 6 : 65-90. *pl.* 30-44. 1895) surpasses it in lightness, and that by a very small margin. More careful tests might perhaps even show *Stillingia* to be the lighter of the two.

Stillingia aquatica presents many other interesting peculiarities besides the lightness of its wood. Unlike *Leitneria*, it has a considerable development of heart-wood, and no pith. It is rather short-lived, the specimens at my locality seeming to die at the age of seven or eight years. It has a remarkably small root-system, resembling very much that of an annual plant, and is very easily pulled up from the mud in which it grows.

BERCHEMIA SCANDENS (Hill.) Trel.

Collected on dry partly shaded limestone rocks, at about 1050 ft. altitude, on the eastern slope of Pigeon Mountain, August 3 (no. 360). The finding of this species in such a place was rather unexpected, as its usual habitat is in alluvial swamps of the coastal plain. All my specimens were sterile. *Bumelia lycioides*, a plant of similar distribution, was found by Mr. Wilson a little higher up the mountain, in similar situations (no. 206).

* Rep. Mo. Bot. Gard. 12 : 57. 16 F. 1901.

HYPERICUM DOLABRIFORME Vent.

The known range of this species was extended southward into Georgia by my discovery of it on flat exposed limestone rocks at the eastern base of Pigeon Mountain, August 3 (no. 359), about 50 feet lower than the *Berchemia* just mentioned. Previously known only from Kentucky and Tennessee.

The prevailing tree in the vicinity of my locality was *Juniperus Virginiana*, which I never saw in such abundance elsewhere in the state; so this may be an extension of the "cedar-glades" of Tennessee, in which Dr. Gattinger finds several other interesting species of *Hypericum*. Mr. T. H. Kearney, Jr., who has collected *H. dolabrifforme* in Tennessee, informs me that he has always found it in these cedar-glades.

Viola denticulosa* Pollard, sp. nov.

Acaulescent, 1–2 dm. in height at the flowering season, becoming 3–4 dm. tall in late summer, producing filiform stolons often fully this length: leaves ligulate-lanceolate, the blades equalling or surpassing the petiole, strongly decurrent, acute at apex, the margin from evenly and finely denticulate to subentire, the upper surface sparsely hirsute with slender bristly hairs: scapes mostly shorter than the foliage: flowers white, nearly or quite 2 cm. in diameter, the keel petal alone veined with dark purple or black: sepals lanceolate, scarious-margined, distinctly auriculate at base, about half the length of the petals: capsules angled or prismatic: cleistogamous flowers borne on erect scapes.

The plant is a southern ally of *V. lanceolata*, bearing somewhat the same relation to that species as *V. primulaefolia australis* does to *V. primulaefolia*. The unusual stature of the plant, its peculiar pubescence, denticulate leaves, which are most noticeable in the older specimens, and the comparatively large sepals and petals are the most distinctive diagnostic characters.

For the above description I am indebted to Mr. Charles Louis Pollard, of the U. S. National Herbarium. The specimens on which the description is based are deposited in the National Herbarium.

This species grows in wet woods among the pine barrens in and near Douglas, Coffee county, where I collected the autumnal stoloniferous and fruiting specimens on September 26 (no. 724).

* Published by permission of the Secretary of the Smithsonian Institution.

As it seemed to differ considerably from any known species, I wrote in April to my friend, Prof. J. W. Hendricks, of the Southern Normal Institute at Douglas, directing him to one of my localities and asking him to collect some flowering specimens for me. He very kindly did so the same month, securing abundant material with flowers and young fruit. He informs me that the best specimens grew in shallow water or very near it. At the time I collected my specimens the ground, although not covered with water, was very moist.

The plant is very abundant in its particular localities, and all of the numerous individuals which I saw seemed to maintain their characters perfectly. To Mr. Pollard's description I can add a character which is not apparent in herbarium specimens, viz : in the living plant (at least in September) the leaves are usually recurved until their tips touch the ground, somewhat after the manner of *Camptosorus*, as might be expected from their great length and thin texture. Some of the leaves of my largest specimens were fully 5 dm. long when fresh.

Some of the specimens collected by Professor Hendricks showed the long dead petioles of last year's leaves, from which the outer tissue had partly fallen off, exposing a strong whitish central vascular bundle. This peculiarity I have never noticed in any other species of the genus.

OPUNTIA VULGARIS Mill.

On July 12 we found this species on the summit of Kennesaw Mountain, at 1809 ft., which is probably the highest station known for it. Stone Mountain, which has hitherto held the record, is 123 ft. lower. It grows also on the Chattoogata Mountains, which are about 75 miles farther inland, but not quite so high.

RHEXIA ARISTOSA Britton

I collected this little-known species in wet pine barrens in Sumter county on August 23 (no. 466), thus extending its known range southwestward about 250 miles, the only previously known station in the Southern States being Sumter, S. C. My specimens are probably the largest of this species ever collected, showing that it reaches its greatest development in Georgia. It grows about 6

dm. tall, and branches copiously ; and with its shining dark-green leaves and numerous large pink-purple flowers it may be considered the handsomest species of the genus.

SANICULA GREGARIA Bicknell, Bull. Torr. Club, **22** : 354. *pl.* 242.
1895

In rich woods on the south side of Bear Creek, Whitfield county, July 18 (no. 256). Not previously reported from Georgia.

SANICULA SMALLII Bicknell, Bull. Torr. Club, **24** : 578. 1897

Collected in rich woods on the south side of Bobbin Mill Creek, Clarke county, July 4 (no. 143).

ERYNGIUM INTEGRIFOLIUM LUDOVICIANUM (Morong) C. & R. Contr. U. S. Nat. Herb. **7** : 48. 31 D. 1900

Collected in moist places among the pine barrens, Sumter county, August 17 (nos. 415, 422), and in a similar locality in Coffee county, September 25 (no. 709). Also observed on September 19 at Tifton, which is within 20 miles of the two stations cited by Coulter and Rose. Six stations in Georgia for this plant are now known (the other one being mentioned in the third edition of Chapman's Flora).

CICUTA CURTISSII C. & R. Contr. U. S. Nat. Herb. **7** : 97. 31 D. 1900

Collected in the edge of a swamp near the Oconee River in the northern part of Athens, July 2 (no. 121). Also seen in Clayton, Paulding and Walker counties.

STEIRONEMA TONSUM (Wood) Bicknell

Collected in dry soil south of Kennesaw Mountain, at 1000 ft. altitude, July 12 (no. 208). This is probably the southernmost known station for it.

STEIRONEMA TONSUM SIMPLEX Kearney, Bull. Torr. Club, **24** : 571.
1897

Two or three specimens were collected on the summit of

Rocky Face Mountain, Whitfield county, at an altitude of 1600 ft., July 21 (no. 284). Known hitherto only from the original collection (Kearney's no. 831) from Wolf Creek, Tennessee. My specimens have been compared with type-material in the herbarium of the New York Botanical Garden, and also examined by Mr. Kearney himself.

LYSIMACHIA FRASERI Duby

This rare species was collected by Mr. Wilson near the summit of Pigeon Mountain, at about 2050 ft. altitude, on August 1 (no. 185).

LIMONIUM NASHII Small, Bull. Torr. Club, **24**: 491. 1897

Collected on the south shore of Tybee Island, September 29 (no. 748). Hitherto reported only from Florida.

SABBATIA BOYKINII Gray

This handsome and little-known species was collected by Mr. Wilson at several points in the northwestern part of the state, at altitudes ranging from 1000 ft. near Gordon Springs to 1950 ft. on Pigeon Mountain. (Nos. 134, 142, 172.) We also saw it at about 800 ft. in Dalton, and at various altitudes in the Chattooga Mountains. Messrs. Pollard and Maxon found it about the same time in the adjacent portions of Alabama. It seems to have been collected only a few times before.

VERBENA ANGUSTIFOLIA Michx.

This is another common weed in northwest Georgia which seems to be absent from other parts of the state. It is represented in our collections by Mr. Wilson's no. 161, from the west side of Taylor's Ridge in Walker county, July 31, and by my no. 385, from Dalton, August 9.

CLINOPODIUM NEPETA (L.) Kuntze

The foregoing remarks will apply to this species also. Collected in Dalton, August 9 (no. 384).

***Dicerandra odoratissima* sp. nov.**

Annual. Base of stem enlarged, and, like the larger roots, covered with sinuous longitudinal ridges : stem 2-4 dm. tall, fastigiately branched from the base : leaves opposite, linear, 2-3 cm. long, with a few smaller ones fascicled in their axils : flowers odorous, very short-pedicelled, in 3-5-flowered sessile axillary cymes, becoming crowded toward the summits of the branches, the uppermost opening first : calyx ascending or erect, about 8 mm. long, 13-nerved, somewhat bilabiate, the upper lip rounded and entire or nearly so, the lower of two slender incurved teeth, exceeding the upper ; limb of the calyx white, the remainder green : corolla about twice the length of the calyx, white, sprinkled with numerous minute purple spots ; tube straight, included in the calyx ; upper lip arched, the lower spreading or deflexed, and 3-lobed : stamens 4, the anterior pair longest, but not exceeding the corolla ; anthers purple, 2-celled, with short purple horns : style bifid, slightly exceeding the corolla.

A beautifully distinct species, differing from its two congeners (*D. linearifolia* (Ell.) Benth. and *D. densiflora* Benth.) more than they do from each other, so much so that the generic characters will have to be somewhat modified. Among the characters by which it differs from both are the nearly sessile flowers, white-limbed calyx, white corolla, and included stamens. The odor of the flowers of *D. odoratissima* is peculiar, suggesting that of the insect *Cimex lectularius*, but not unpleasant. I do not remember noticing any such odor connected with *D. linearifolia* when I collected that species a few years ago.

D. odoratissima differs further from *D. linearifolia* in its dense inflorescence and purple anther-horns (yellow in *D. linearifolia*, and perhaps in *D. densiflora* also), and from *D. densiflora* in its linear leaves. Some specimens of *D. densiflora* which I have examined have an enlarged stem-base approaching in size that of *D. odoratissima*, but I have not observed this character in *D. linearifolia*.

Dicerandra odoratissima grows in abundance in dry sunny places on sand-hills (Columbia formation) along the Satilla River and its tributaries in southeastern Georgia, and was observed in full bloom Sept. 20-28, in Coffee, Ware and Pierce counties. My specimens were collected near Seventeen Mile Creek, in Coffee county, on the morning of Sept. 24th (no. 695). At the time I

suspected it to be an undescribed species, and photographed a patch of it. This photograph is reproduced in Fig. 3.

At the type locality *D. odoratissima* is accompanied by such plants as *Stenophyllus ciliatifolius* (no. 696), *Smilax pumila*, *Eriogonum tomentosum*, *Siphonochia Americana* (no. 700), *Chrysobalanus oblongifolius* (no. 698), *Euphorbia cordifolia*, *Trichostema lineare*, *Solidago odora* (no. 699), and *Actinospermum angustifolium* (no. 697). The altitude of the type-locality is unknown, but the altitude of the locality in Pierce county where I last saw the plant is about 100 feet. This species grows in large patches, and its characteristic odor was very noticeable from a moving train as I passed through several of these patches the day I left Douglas.

On examining the material representing the genus *Dicerandra* in the Columbia University Herbarium, I found a fragmentary specimen of what is evidently *D. odoratissima*, collected in Georgia by Capt. LeConte, in 1831. On the same sheet (which bears the stamp of the Torrey Herbarium), was a plant collected in Florida by Dr. Baltzell in 1839, which turns out to be *Conradina puberula* Small,* a recently described species. Both were labeled "*Ceranthra linearifolia* Ell.," apparently in Dr. Torrey's handwriting, Capt. LeConte's specimen doubtless came from somewhere in the same region as mine, as he had a plantation in Liberty county, and most of his Georgia plants were probably collected in that vicinity.

YEATESIA LAETEVIRENS (Buckl.) Small, Bull. Torr. Club, **23**: 410. 1896

Collected in low woods near the Flint River, in Dooly and Sumter counties, September 3 and 10 (nos. 582 and 630). This rare species has been hitherto known in Georgia only from the collections of Dr. Small, who found it near Albany, about 30 miles down the river.

HOUSTONIA ROTUNDIFOLIA Michx.

Collected in dry pine-barrens, Sumter county, August 23 (no. 454), and in dry sand near the Flint River, in Dooly county, September 3 (no. 573). This species has probably not been found farther inland. My Sumter county specimens are the only ones I have seen from the Lafayette formation, all the others in the herbaria which I have examined being from the Columbia.

* Bull. Torr. Club, **25**: 469. 1898.

LONICERA FLAVA Sims.

This rare species was found by Mr. Wilson and myself in several localities in the northern part of the state. I collected it on Stone Mountain (no. 178), Kennesaw Mountain (no. 216), and Pigeon Mountain (no. 330); and Mr. Wilson collected it on the Chattoogata Mountains (no. 75). The altitudes of all these stations are between 1250 and 1400 ft.

VERNONIA FLACCIDIFOLIA Small, Bull. Torr. Club, 25: 144. 1898

We found this species quite frequent in Whitfield and Walker counties, adjoining Catoosa, in where Dr. Small discovered it in 1895. Mr. Wilson collected it near Dalton (no. 86) and on Pigeon Mountain (no. 174). It grows on various formations, ranging from Chickamauga (Lower Silurian) to Coal Measures (Carboniferous), and ascends to 2000 ft. altitude on Pigeon Mountain.

LACINARIA BOYKINII (T. & G.) Kuntze

This species was collected, apparently for the first time since it was described, by me on the high sandy bank of the Flint River in Sumter county, September 10 (no. 635). The original specimens were collected by Dr. Boykin in the vicinity of Columbus in the early part of the nineteenth century.

The circumstances under which I found it lead me to suspect that it is a hybrid between *L. elegans* and *L. tenuifolia*, both of which grew in abundance in intimate association with it. Although these two species are not very similar, yet *L. Boykinii* appears intermediate between them in all its characters, such as position of leaves, length of peduncles, size and color of involucre bracts, plumosity of pappus, and color of corollas (white in *elegans* and purple in *tenuifolia*). The specimens of *L. Boykinii* were much less abundant than those of either of the other species, and I did not find it at any distance from them. My first impression that it was an undescribed hybrid was so strong that it was a surprise to me to find after my return that my specimens were referable to a described species. They have been compared with the type of *Boykinii* in the Torrey Herbarium. I have no means of knowing whether *L. Boykinii* is associated with the same two species elsewhere, as I know of no other living botanist who has

collected it ; but it is not at all improbable that these two species might have accompanied it at the original locality, which is about 80 miles from mine.

ANTENNARIA SOLITARIA Rydb. Bull. Torr. Club, **24** : 304. 1897

A. plantaginifolia var. *monocephala* T. & G.

Collected in rich shady woods at two localities in Clarke county, between 600 and 700 ft. altitude (nos. 37 and 142), also in a ravine at the eastern base of Taylor's Ridge, near Gordon Springs, July 27 (no. 321) ; also seen in the Chattoogata Mountains. No trace of an inflorescence was observed at either locality, but this species is strikingly distinct, by its leaves and stolons alone, from *A. plantaginifolia*, which grows near it in Clarke county, but in warmer and drier places.

ANTENNARIA CALOPHYLLA Greene, Pittonia, **3** : 347. 1898

Fine large specimens, which seem to belong here, with leafy flowering stems and withered involucre still persistent, were collected in dry rocky places north of Stone Mountain, at 875 ft. altitude, July 10 (no. 202), accompanied by *Arenaria lanuginosa* (Michx.) Rohrb. Some leaves which doubtless belong to the same species were collected up on the northwest slope of the mountain, at 1300 ft. (no. 177). Determined by Mr. Elias Nelson.

POLYMNIA CANADENSIS RADIATA Gray

This showy plant was collected, apparently for the first time in Georgia, on the summits of limestone boulders (Mountain Limestone) in rich woods on the eastern slope of Pigeon Mountain, at 1300 ft. altitude, August 3 (no. 361). It is probably a good species. The rays in my specimens were pure white and fully 2 cm. long.

POLYMNIA LAEVIGATA Beadle, Bot. Gaz. **25** : 278. 1898

A second station for this species was discovered by Mr. Wilson on the east slope of Pigeon Mountain, among sandstone rocks (Coal Measures) at 1500-1550 ft. altitude, August 1 (no. 170). Known hitherto only from the original station, Cowan, Tennessee, which is about 45 miles away.

***Baldwinia atropurpurea* sp. nov.**

Stem furrowed, erect, 6–8 dm. tall, simple or with one or two erect branches : leaves alternate, ascending, linear-spatulate, gradually diminishing in size toward the summit of the stem ; the lowest 10–12 cm. long by 3–4 mm. wide : heads 1–3, terminal : ligules of the rays spatulate, 3–4 cm. long, 3–4 mm. wide, 2–3-toothed at the apex, pale yellow : disk-corollas dark purple : pappus, achenes and involucre nearly as in *B. uniflora*.

This species is distinguished at once from *B. uniflora*, its only near relative, by its dark-purple disk, longer and narrower leaves, and usually longer and fewer rays. Its aspect in the field is so different from that of *B. uniflora* that I was not certain of the genus until I examined the achenes several weeks after collecting the specimens. In the living plant the rays are decidedly paler than those of *B. uniflora*, but this character is scarcely apparent in dried specimens.

Collected in moist pine barrens, Tifton, Berrien county, at 340 ft. altitude, about 4:15 p. m. on September 19th (no. 662). Accompanied by such species as *Woodwardia Virginica*, *Eriocaulon decangulare*, *Sarracenia flava* (no. 663), *S. psittacina* (no. 660), *Aeschynomene Virginica*, *Eryngium integrifolium Ludovicianum*, *Oxypolis filiformis* (no. 659), *O. ternata* (no. 666), *Mesosphaerum rugosum*, *Viburnum nudum*, *Coreopsis angustifolia* (no. 661), and *Mesadenia lanceolata* (no. 664), which is rather a different association from that in which I have found *B. uniflora*.

I find no specimens similar to mine in the U. S. National Herbarium or the herbaria of Columbia University and the New York Botanical Garden ; but it is possible that this species has been collected before. Dr. Chapman, in his *Flora*, under the head of *B. uniflora*, says : “ Dr. Curtis finds a form with the disk flowers dark purple,” and this would seem to indicate the occurrence of this species in North Carolina. It should be looked for in the coastal plain of that state, as well as in South Carolina.

Rafinesque has described a *Baldwinia bicolor*,* “ found by Le Conte in Florida or Georgia,” which I thought at first from his specific name might be my plant ; but certain clauses in his description, such as “ with white rays and yellow disk ” and “ stem pedal, leaves uncial,” would seem to exclude my *B. atropurpurea*,

* New Fl. N. A. 4 : 73. 1836.

so that unless a specimen of Rafinesque's plant is found, it must continue to be classed among his numerous unidentified species.

The nomenclature of this genus is in a somewhat unsettled condition (see Barnhart in Bull. Torr. Club, **24**: 411), but I have used the generic name which will be best understood until a suitable substitute is found. I would hardly regard *Baldwinia* as congeneric with *Actinospermum*, as has been done by some authors.

ACTINOSPERMUM ANGUSTIFOLIUM (Pursh) Torr.

Collected on dry sand-hills near Seventeen Mile Creek, Coffee county, September 24 (no. 697), and observed in similar situations near the Satilla River in Ware county, September 28. Accompanied by *Dicerandra odoratissima* at both stations.

HELENium TENUIFOLIUM Nutt.

The spread of this weed in northwest Georgia during the past few years has been remarkable. While in Dalton I was asked by many people if I had noticed how it had taken the place of the dog-fennel (*Anthemis Cotula*), which was as abundant when I lived there, ten or twelve years ago, as *Helenium* is now. Some thought that the *Anthemis* had all changed into *Helenium* by some sort of metamorphosis. *Anthemis* has now almost disappeared from the vicinity of Dalton, while *Helenium* is everywhere in vacant lots and along roadsides. The latter is represented in our collection by Mr. Wilson's no. 88, from Dalton, July 20th. I do not recall another case of an American weed driving out a European one.

Helenium is also common in middle and south Georgia, but does not seem to have perceptibly increased in those sections since 1895, when I first became acquainted with it.

LACTUCA SCARIOLA L.

This weed seems to be obtaining a foothold in Georgia. I collected it in Athens July 2 (no. 122), and afterward saw it in Floyd and Whitfield counties. So far I have seen it only along railroad tracks.

Besides the species here mentioned, there are several others in my collection of 1900 which appear to be undescribed, but as they seem to present more difficulties than those herein described, they are reserved for further study.

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